SEQUENCE LISTING

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       Defoor, Els Marie Celine

<120>  Orotate Transporter Encoding Marker Genes

<130>  10556.204-US

<160>  22

<170>  PatentIn version 3.3

<210>  1
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<212>  DNA
<213>  Lactococcus lactis


<220>
<221>  CDS
<222>  (1)..(921)
<223>  Orotate transporter encoding ORF

<400>  1

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Met Tyr Ile Tyr Leu Ala Phe Ala Leu Val Gly Gly Phe Leu Leu Ala
1               5                   10                  15

aat caa aat cca atc aat gcg gat tta cga aaa att gtt ggc tca cca        96
Asn Gln Asn Pro Ile Asn Ala Asp Leu Arg Lys Ile Val Gly Ser Pro
                20                  25                  30

ttt ttg gcc tct gga att tcc aac ttt gtt ggt tcg att ttt tta gga      144
Phe Leu Ala Ser Gly Ile Ser Asn Phe Val Gly Ser Ile Phe Leu Gly
            35                  40                  45

att atc act tta gtg acc agt caa aca ctt ttt cct agt ttt caa ttt      192
Ile Ile Thr Leu Val Thr Ser Gln Thr Leu Phe Pro Ser Phe Gln Phe
        50                  55                  60

gtt ggc tca cac cca gta tgg ata tgg att ggt ggg gtt ctt ggt ggg      240
Val Gly Ser His Pro Val Trp Ile Trp Ile Gly Gly Val Leu Gly Gly
65                  70                  75                  80

att ttt cta aca tct aat gtt tta ctt ttc cca aga tta gga gct gtc      288
Ile Phe Leu Thr Ser Asn Val Leu Leu Phe Pro Arg Leu Gly Ala Val
                85                  90                  95

caa acg gtg att tta cct att ttg ggt cga ata ttg atg ggg aca ctt      336
Gln Thr Val Ile Leu Pro Ile Leu Gly Arg Ile Leu Met Gly Thr Leu
                100                 105                 110

att gat tca ttt ggc tgg ttt cat gcc atg caa ctt ccg atg act ctg      384
Ile Asp Ser Phe Gly Trp Phe His Ala Met Gln Leu Pro Met Thr Leu
            115                 120                 125
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atg cgc ttt ttg gga gtt atc att act tta gct ggg gtt att gtc gcg        432
Met Arg Phe Leu Gly Val Ile Ile Thr Leu Ala Gly Val Ile Val Ala
    130                     135                 140

gtt gtt ctt cct aat tta aaa gaa aaa gaa gca gaa acg cac caa act        480
Val Val Leu Pro Asn Leu Lys Glu Lys Glu Ala Glu Thr His Gln Thr
145                     150                 155                 160

aac tta cta ggc tgg cga att tgg gcg gtc atc gtt ggg gca atg tcg        528
Asn Leu Leu Gly Trp Arg Ile Trp Ala Val Ile Val Gly Ala Met Ser
                165                 170                 175

gct gct caa caa gca att aat ggc aga ttg gga gtt tta ctt gaa aac        576
Ala Ala Gln Gln Ala Ile Asn Gly Arg Leu Gly Val Leu Leu Glu Asn
                180                 185                 190

act gca caa gca acc ttt gtt tcg ttc ttc att gga ttt tta gct att        624
Thr Ala Gln Ala Thr Phe Val Ser Phe Phe Ile Gly Phe Leu Ala Ile
            195                 200                 205

ttt atc gtg tct ctt ttt att gac cgc cgt ttg cca aaa att tca gaa        672
Phe Ile Val Ser Leu Phe Ile Asp Arg Arg Leu Pro Lys Ile Ser Glu
    210                     215                 220

tta aaa aaa gca aaa cct tgg aat gga att ggt gga ttt tta gga gcc        720
Leu Lys Lys Ala Lys Pro Trp Asn Gly Ile Gly Gly Phe Leu Gly Ala
225                     230                 235                 240

tca atc gtt ttt gca aca gtc gtt gct gtt ccg caa att ggt gca ggg        768
Ser Ile Val Phe Ala Thr Val Val Ala Val Pro Gln Ile Gly Ala Gly
                245                 250                 255

ctg aca att atg atg ggc ttg att gga caa att tta ggc agt atg ttg        816
Leu Thr Ile Met Met Gly Leu Ile Gly Gln Ile Leu Gly Ser Met Leu
                260                 265                 270

gtt caa caa ttt ggt tgg tgg cgc tca agt aaa tat ggc att caa att        864
Val Gln Gln Phe Gly Trp Trp Arg Ser Ser Lys Tyr Gly Ile Gln Ile
            275                 280                 285

tgg caa att gtt ggg att cta att atg ctg acc gga ata ata ttc att        912
Trp Gln Ile Val Gly Ile Leu Ile Met Leu Thr Gly Ile Ile Phe Ile
    290                     295                 300

aaa ttt tta                                                            921
Lys Phe Leu
305


<210>  2
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<212>  PRT
<213>  Lactococcus lactis

<400>  2

Met Tyr Ile Tyr Leu Ala Phe Ala Leu Val Gly Gly Phe Leu Leu Ala
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2

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1                      5                        10                         15

Asn Gln Asn Pro Ile Asn Ala Asp Leu Arg Lys Ile Val Gly Ser Pro
            20              25              30

Phe Leu Ala Ser Gly Ile Ser Asn Phe Val Gly Ser Ile Phe Leu Gly
            35              40              45

Ile Ile Thr Leu Val Thr Ser Gln Thr Leu Phe Pro Ser Phe Gln Phe
        50              55              60

Val Gly Ser His Pro Val Trp Ile Trp Ile Gly Gly Val Leu Gly Gly
65              70              75              80

Ile Phe Leu Thr Ser Asn Val Leu Leu Phe Pro Arg Leu Gly Ala Val
                85              90              95

Gln Thr Val Ile Leu Pro Ile Leu Gly Arg Ile Leu Met Gly Thr Leu
            100             105             110

Ile Asp Ser Phe Gly Trp Phe His Ala Met Gln Leu Pro Met Thr Leu
        115             120             125

Met Arg Phe Leu Gly Val Ile Ile Thr Leu Ala Gly Val Ile Val Ala
    130             135             140

Val Val Leu Pro Asn Leu Lys Glu Lys Glu Ala Glu Thr His Gln Thr
145             150             155             160

Asn Leu Leu Gly Trp Arg Ile Trp Ala Val Ile Val Gly Ala Met Ser
            165             170             175

Ala Ala Gln Gln Ala Ile Asn Gly Arg Leu Gly Val Leu Leu Glu Asn
            180             185             190

Thr Ala Gln Ala Thr Phe Val Ser Phe Phe Ile Gly Phe Leu Ala Ile
            195             200             205

Phe Ile Val Ser Leu Phe Ile Asp Arg Arg Leu Pro Lys Ile Ser Glu
    210             215             220

Leu Lys Lys Ala Lys Pro Trp Asn Gly Ile Gly Gly Phe Leu Gly Ala
225             230             235             240

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Ser Ile Val Phe Ala Thr Val Val Ala Val Pro Gln Ile Gly Ala Gly
            245                 250                 255

Leu Thr Ile Met Met Gly Leu Ile Gly Gln Ile Leu Gly Ser Met Leu
            260                 265                 270

Val Gln Gln Phe Gly Trp Trp Arg Ser Ser Lys Tyr Gly Ile Gln Ile
            275                 280                 285

Trp Gln Ile Val Gly Ile Leu Ile Met Leu Thr Gly Ile Ile Phe Ile
    290                 295                 300

Lys Phe Leu
305


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cgggatccat gaccgcacca acagc                                          25


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catgccatgg ccaaatccat ctttaggc                                       28


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4

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<210>    8
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ctgtactggt ccataagctc ggatccacca aaacaacctg acgctg             46


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tggtggaatt ggggttc                                                    17


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caaggtctgc gaagatg                                                    17


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attgacagaa ctgccag                                                    17


<210>  15
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<220>
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